

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS

-1-(Currently Amended)

1 A mesostructured crystalline hydrated alumina
2 composition which is microporous and consists essentially
3 of boehmite with atomically ordered crystalline
4 framework walls forming mesopores, without amorphous
5 hydrated alumina, and exhibiting at least one low angle
6 x-ray diffraction line corresponding to a lattice spacing
7 of at least 2.0 nm and multiple wide angle x-ray
8 diffraction lines with CuK α radiation wherein λ is 0.1541
9 nm corresponding to an ordered lattice comprised of
10 oxygen atoms and hydroxide groups with aluminum in
11 interstitial positions within the lattice, wherein the
12 surface area is at least 200 m²/g; and wherein the pore
13 volume is at least 0.40 cm³/g, wherein the boehmite is
14 formed by mixing a precursor ~~an~~ amorphous hydrated
15 alumina and an organic modifier which forms the
16 mesostructure and then heating the mixture so that the
17 boehmite is completely formed and then removing water and
18 the organic modifier to provide the composition.

Claim 2 (Cancelled)

-3-(Currently Amended)

1 A mesostructured crystalline hydrated alumina
2 composite composition with mesopores containing an
3 organic modifier in the mesopores of the alumina wherein
4 the alumina composition consists essentially of boehmite
5 with atomically ordered crystalline framework walls
6 forming mesopores, without amorphous hydrated alumina,
7 and exhibits at least one low angle x-ray diffraction
8 line corresponding to a lattice spacing of at least 2.0
9 nm and multiple wide angle x-ray diffraction lines
10 corresponding to an ordered lattice comprised of oxygen
11 atoms and hydroxide groups with aluminum in interstitial
12 positions within the lattice, wherein the boehmite is
13 formed by mixing a precursor ~~an~~ amorphous hydrated
14 alumina and the organic modifier which forms the
15 mesostructure and then heating the mixture so that the
16 boehmite is completely formed to provide the composition.

-4-(Previously Amended)

1 The composition of Claim 3 wherein the organic
2 modifier is a non-ionic surfactant.

-5-(Previously Amended)

1 The composition of Claim 4 wherein the
2 surfactant is selected from the group consisting of a
3 polyethylene oxide block co-polymer, an alkylene amine;
4 an alkylene polyamine, a polypropylene oxide amine, a
5 polypropylene oxide polyamine and mixtures thereof.

-6-(Previously Amended)

1 The composition of any one of Claims 3, 4 or 5
2 wherein the hydrated alumina component is boehmite.

-7-(Currently Amended)

1 A mesostructured crystalline transition alumina
2 composition comprising gamma alumina and:

3 wherein the composition exhibits at least one
4 low angle x-ray diffraction line corresponding to a
5 lattice spacing of at least 2.0 nm and derived from a
6 boehmite with atomically ordered crystalline framework
7 walls forming mesopores, without amorphous hydrated
8 alumina, with multiple wide angle x-ray diffraction lines
9 with CuK α radiation wherein λ is 0.1541 nm corresponding
10 to an ordered oxygen atom lattice with aluminum in
11 interstitial positions within the lattice, wherein the
12 surface area is at least 200 m²/g; and wherein the pore
13 volume is at least 0.40 cm³/g, wherein the boehmite is
14 formed by mixing a precursor ~~an~~ amorphous hydrated
15 alumina with an organic modifier which forms the
16 mesostructure, heating the solution so that the boehmite
17 is completely formed, then removing water and the organic
18 modifier from the mesostructured boehmite, and then
19 calcining the mesostructured boehmite to form the gamma
20 alumina composition.

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-8-(Previously Amended)

1 The mesostructured transition alumina of Claim
2 7 wherein the transition alumina consists essentially of
3 gamma alumina.

Claims 9 - 26 (Cancelled)